

EXECUTIVE SUMMARY

ES.1 INTRODUCTION

Maricopa Sun, LLC, has submitted an application to the Service for an Incidental Take Permit (ITP) pursuant to Section 10(a)(1)(B) of the ESA, as amended, for activities covered under the Maricopa Sun Solar Complex Habitat Conservation Plan (Maricopa Sun HCP). The Draft HCP is included in the Appendix of this EIS. Maricopa Sun LLC has requested that an ITP from the Service authorize the incidental take of five species, including three federally listed species and 2 other species that may become federally listed during the 35-year life of the HCP. These species are collectively referred to as the Covered Species and are shown in Table ES-1.

Maricopa Sun LLC proposes to construct and operate the Maricopa Sun Solar Complex Project (Project), a 700 megawatt (mw) photo-voltaic power generating facility¹. Electricity generated by the photo-voltaic facility will be sold to retail energy providers and made available to consumers. The Project, on approximately 5,784.3 acres, is generally located along South Lake Road and along Copus Road approximately 3 miles from the unincorporated community of Maricopa in southwestern Kern County (Covered Lands) (See Figures ES-1 and ES-2). Activities proposed to be covered by the ITP (Covered Activities) include pre-construction, construction, operations and maintenance, decommissioning, preservation and enhancement, and conservation plan management. (See Chapter 2.0 of this EIS, for proposed land use/disturbance. More detailed information can be found in the Draft HCP, contained in the Appendix of this EIS). At the end of the life of the Project (35 years) and after decommissioning, disturbed lands will be included in a conservation easement in perpetuity.

This Environmental Impact Statement (EIS) has been prepared by the U.S. Fish and Wildlife Service (Service) pursuant to the National Environmental Policy Act (NEPA) (42 U.S.C. §4321 *et seq.*) This EIS evaluates the effects of issuing an ITP pursuant to Section 10(a)(1)(B) of the ESA of 1973, as amended (16 U.S.C. § 1531 *et seq.*, 1539), for activities associated with the proposed Maricopa Sun Solar Complex Project (Project). Under Section 10(a)(2)(A) of the ESA, any application for an ITP must include a conservation plan that details, among other things, the impacts of take and the steps taken to minimize and mitigate such impacts.

An ITP is needed to authorize incidental take of The ITP applications request authorization for the incidental take of three federally listed species and for two currently unlisted species that may become listed within the 35-year permit period that may result from implementing activities covered under the proposed Maricopa Sun HCP.

¹ The amount of energy from a 700 mw facility is calculated as follows: 700 mw x 8,766 hours/year x 30% capacity factor = 1.84 million MWh = 1,840 gigawatt hours = 1.84 terrawatt hours

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Table ES-1
Species Covered by the Maricopa Sun HCP and ITP

Common Name	Scientific Name	Federal Status ¹	State Status ¹	Other ¹
Covered Reptiles				
Blunt-nosed leopard lizard	<i>Gambelia sila</i>	FE	SE	SFP
Covered Mammals				
Tipton kangaroo rat	<i>Dipodomys nitratoide</i> <i>nitratoide</i>	FE	SE	-
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	FE	ST	-
Nelson's antelope squirrel	<i>Ammospermophilus nelsoni</i>	-	ST	-
Covered Birds				
Burrowing owl	<i>Athene cunicularia</i>	-	CSC	MBTA

Source: Quad Knopf, 2011a.

¹ THE FOLLOWING ACRONYMS ARE DEFINED AS: FP = PROPOSED FOR FEDERAL LISTING, CSC = CALIFORNIA SPECIES OF CONCERN, SE = STATE ENDANGERED, ST = STATE THREATENED, SFP = STATE FULLY PROTECTED, MBTA = MIGRATORY BIRD TREATY ACT, AND BLMS = BUREAU OF LAND MANAGEMENT STATUS.

ES.2 PURPOSE AND NEED

The purpose of the proposed action and preparing this EIS are to:

- Respond to Maricopa Sun, LLC's application for an ITP for the covered species, pursuant to Section 10(a)(1)(B) of the ESA, as amended, and its implementing regulations (50 C.F.R. part 17.22 (b)(1) and policies.
- Protect, conserve and enhance the covered species and their habitats for the continuing benefit of the people of the United States.
- Provide a means and take steps to conserve the ecosystems depended on by the covered species.
- Ensure the long-term survival of the covered species through protection and management of the species and their habitat.
- Ensure compliance with the ESA, NEPA, and other applicable federal laws and regulations.

The need for the action is based on the covered activities proposed by Maricopa Sun, LLC that could result in the incidental take of covered species within the HCP boundaries as a result of habitat modification from planned future development of a Photovoltaic Solar Complex Project.

ES.3 NEPA COMPLIANCE

NEPA provides an interdisciplinary framework to ensure that federal agency decision-makers consider the effects of their actions on the environment. Under NEPA, any major federal action that may significantly affect the quality of the environment requires the preparation of an EIS.

Issuance of an ITP pursuant to the proposed HCP could result in significant environmental effects. Therefore, preparation of an EIS to consider the effects of the proposed action is necessary. This DEIS is an informational document intended to provide federal agencies, responsible or other interested agencies, and the public with an assessment of the potential environmental effects associated with issuance of an ITP by the U.S. Fish and Wildlife Service based on the proposed HCP. This EIS has been prepared in compliance with NEPA and the Council on Environmental Quality (CEQ) regulations (40 CFR 1500-1508).

ES.4 PUBLIC SCOPING PROCESS

The Council on Environmental Quality regulations for implementing NEPA require a process, referred to as scoping, for determining the range of issues to be addressed during the environmental review of a proposed action (40 CFR 1501.7). Through the scoping process, comments are solicited from agencies, organizations, and individuals to assist the Service in identifying environmental issues to be addressed in the EIS.

It should be noted that an environmental scoping process was conducted for the EIR that was prepared under the California Environmental Quality Act (CEQA) for the Maricopa Sun Solar Project and certified by the County of Kern (# 2010031034, Kern County 2010). A scoping meeting was conducted for the EIR in March 2010. At the end of the scoping process 13 comment letters were received addressing the proposed scope of EIR. The environmental topic areas analyzed in the EIR were based in part upon comments received during the scoping process. Those same environmental topics, or issue areas, are addressed in this EIS.

The Service held a public scoping meeting on January 23, 2012, at the Kern County Public Services Building, 2700 M Street, Conference Room 1-A, Bakersfield, California.

The scoping period began with publication of the NOI on December 23, 2011 and officially ended on February 21, 2012. A total of one comment letter was received from public agencies, organizations, and individuals. The single letter received is from the U.S. Environmental Protection Agency, dated February 14, 2012. There were no public comments.

ES.5 PROPOSED ACTION AND ALTERNATIVES

ES.5.1 No Action Alternative

Under the No Action Alternative, the Service would not issue an ITP and the Project would not be developed. The No Action Alternative would avoid the potential take of the proposed Cover Species, but would also not provide a clean source of electricity, offset carbon emissions, or contribute to the Nation's renewable energy portfolio. The 5,784.3 acres identified as the Permit Area would likely remain agricultural, the 1894.4 acres identified as Conservation Sites would not be permanently conserved, and the proposed Conservation Management Plan would not be implemented. As a result, there would be no conservation benefit to Covered Species or other listed or sensitive species as a result of the Proposed Action. Agricultural activities, including grazing or disking, would likely continue resulting in reduced habitat quality as a result of vegetation removal and soil compaction.

ES.5.2 Proposed HCP Alternative

The Proposed Action comprises the issuance of an ITP requested by the Applicant and implementation of the proposed Maricopa Solar HCP, including covered activities and conservation measures to avoid, minimize, or mitigate effects to the covered species. The Maricopa Sun Solar Complex is the first large scale PV solar project on private lands in the San Joaquin Valley. A number of environmental commitments have been incorporated into the covered activities to reduce the effects of the Project on the human environment.

Covered activities include four distinct phasing – Pre-construction, Construction, Operations and Maintenance, and Decommissioning. Multiple activities are expected to occur within each phase, as summarized in Table ES-2.

ES.5.3 Reduced Permit Area Alternative

Under the Reduced Permit Area Alternative, the Permit Area would be reduced from 5,784.3 acres to 3,682 acres by removing from the Project: Sites 4-S/4-M (652.5 acres), 6-S (320.9 acres), 7-S/7-M (481.2 acres) and 17-C (647.7 acres). The lands excluded from the Permit Area would likely remain vacant and would continue to be disked on a regular basis for weed control. If water became available, these lands would likely be converted to active agricultural production.

Under this alternative, there would be fewer disturbances of the Covered Species than under the Proposed Action because construction, operations, maintenance and decommissioning activities would occur over a smaller area. However, less land would be permanently conserved and managed, likely resulting in fewer benefits to the Covered Species.

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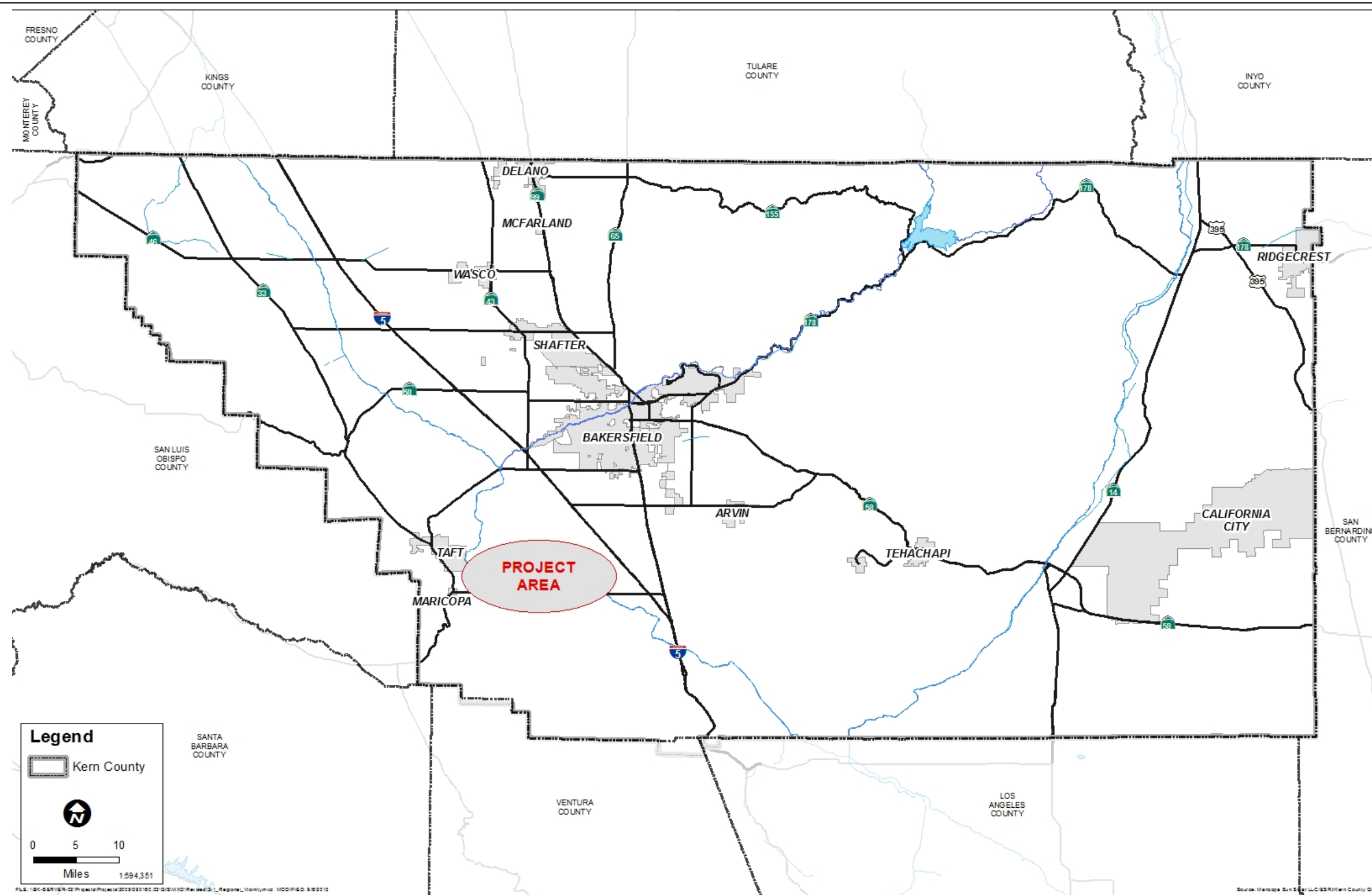
Table ES-2
Occurrences of Covered Activities by Phase

Activity	Pre-construction	Construction	O&M*	Decommission
Clearing, grubbing, grading and leveling	X	X		X
Construction of O&M* buildings and meteorological stations		X		
Construction of overhead power lines, solar arrays		X		
Delivery of materials and equipment	X	X	X	
Demarcation of construction areas	X			
Drainage, erosion and dust control	X	X	X	X
Establishing and maintaining staging area(s)	X	X	X	
Fencing, installing gates, lighting, and construction of parking areas	X	X	X	
Geotechnical drilling and testing	X			
Grading and compacting	X	X		
Installation of overhead AC transmission lines		X		
Installation of signs	X	X		
Landscaping/site enhancement		X		
Managing waste (non-hazardous & hazardous)	X	X	X	X
Meter reading			X	
Monitoring alarms/security			X	
Operation of solar modules			X	
Paving of access road(s) and building areas		X	X	
Post construction soil treatment		X	X	
Removal of access roads				X
Reconductoring and installation of overhead AC transmission line system and substation expansion		X		
Removal of buildings, foundations, and concrete pads		X		X
Removal of electrical cabling				X
Removal of solar systems				X
Solar panel maintenance			X	
Surveying and staking	X			
Testing, plugging and abandoning wells	X			
Vegetation and weed management			X	
Habitat management, enhancement, and research**		X	X	X

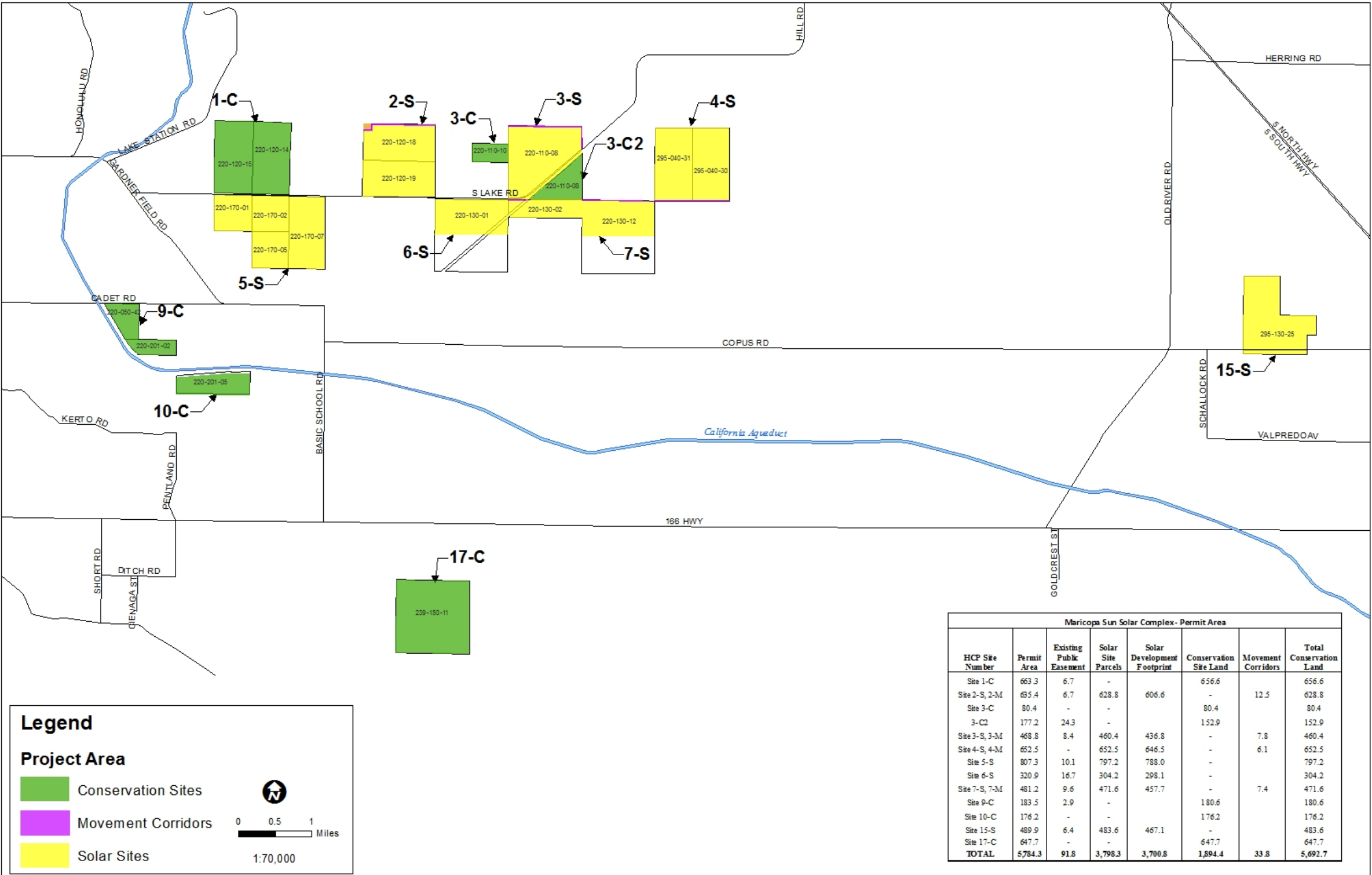
* O&M = operations and maintenance

** Habitat management, enhancement, and research are independent of solar operations and are not discussed relative to phase.

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PROPOSED ACTION PARCELS
MARICOPA SUN SOLAR LLC

Figure
ES - 2

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ES.6 ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION AND ALTERNATIVES

Table ES-3
Summary of Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation #	Mitigation Measure	Significance After Mitigation
4.1 Aesthetics/Visual Resources				
<i>No Action Alternative</i>	Minimal		There are no mitigation measures imposed under the No Action Alternative.	Minimal
<i>Proposed HCP Alternative and Reduced Permit Area Alternative</i> Visual character effects during construction and operations	Considerable	4.1-1	Drought tolerant native plants, in minimum of 15-gallon size containers, approved by the Kern County Planning and Community Development Department, shall be planted along the fence line at 500-foot intervals where the adjoining property is zoned for residential use (E [Estate Residential], R-2 [Medium Density Residential], or R-3 [High-Density Residential]). This vegetative treatment should also be implemented along local rural routes.	Substantial and unavoidable
		4.1-2	Prior to the final site plan approval and the issuance of grading or building permits, the project boundary setbacks shall be increased by an additional 50 feet near heavily used travel ways (e.g., SR-166, South Lake Road, and Old River Road), and residences. This technique would create separation by reducing the immediate adjacency of the proposed project, effectively reducing the project's proximity to visual receptors. This would also help create a sense of space where project parcels are on both sides of the travel way.	
		4.1-3	The Project Operator, to the extent feasible, shall install underground, onsite electrical collection systems to reduce the random tall vertical lines created by the electrical poles.	

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Impact	Significance Before Mitigation	Mitigation #	Mitigation Measure	Significance After Mitigation
			Undergrounding would also remove the dark horizontal lines of the conductors. This would create a project footprint that has a considerably smaller vertical presence, resulting in a less cluttered skyline and a more benign industrial nature.	
		4.1-4	The Project Operator shall clear debris from the project area at least twice per year; this can be in conjunction with regular panel washing and site maintenance activities. The applicant shall erect signs with contact information for the facility operator's maintenance staff at regular intervals along the site boundary, as required by Kern County Planning and Community Development Department. Maintenance staff shall respond within two weeks to resident requests for additional cleanup.	
		4.1-5	All outdoor lighting shall be the minimum required to meet safety and security standards. The color of all light fixtures shall emit a minimum of blue in their spectrum. "White" light sources, such as metal halide lamps and white light-emitting diodes, shall not be used. Acceptable light sources include high- and low-pressure sodium lamps, incandescent bulbs, and "yellow" light-emitting diodes. Project facility lighting shall be designed to provide the minimum illumination needed to achieve safety and security objectives.	
		4.1-6	All light fixtures shall have a flat lens recessed within a shield or hood to direct light to the intended illumination area. This will reduce the potential for glare effects that otherwise may create light trespass to residents or motorists and will minimize the amount of	

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Impact	Significance Before Mitigation	Mitigation #	Mitigation Measure	Significance After Mitigation
			light spilling upward into the sky, which would potentially affect local dark-sky conditions. Appropriate lighting at that time will be used and this will be in compliance with development standards, the Kern County Zoning Ordinance Chapter 19.81, and the goals, policies and implementation plans of the Kern County General Plan Land Use, Open Space and Conservation Element.	
		4.1-7	Security lighting shall utilize advanced security technologies, such as motion detectors or remote security surveillance that would activate the security lighting only when the sensors identify a perimeter breach or other security threat. Additionally, lights shall use timers limiting their activation time. Dusk till dawn security lighting is prohibited. Operation and maintenance activities shall be conducted during daylight hours.	
		4.1-8	Solar panels and hardware shall be designed to minimize glare and spectral highlighting. To the extent possible, emerging technologies shall be utilized that introduce diffusion coatings and nanotechnological innovations that will effectively reduce the refractive index of the solar cells and protective glass. These technological advancements are intended to make the solar panels more efficient at converting incident sunlight into electrical power, but have the tertiary effect of reducing the amount of light that escapes into the atmosphere in the form of reflected light, which would be the potential source of glare and spectral highlighting.	

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		4.1-9	As needed along the boundaries of the facility, appropriately colored privacy slats shall be woven into the perimeter fencing to reduce the potential for glare and spectral highlighting of the solar panels, which may be a source of distraction or discomfort to motorists along I-5, SR 166, South Lake Road, Copus Road, and Old River Road, and to scattered rural residents, especially along Copus Road.	
Cumulative visual effects	Cumulatively considerable		Mitigation measures MM 4.1-1 through MM 4.1-9 would be applied.	Substantial and unavoidable
4.2 Agriculture				
<i>No Action / Alternative</i>	Minimal		There are no mitigation measures imposed under the No Action Alternative.	Minimal
<i>Proposed HCP Alternative and Reduced Permit Area Alternative</i>	Minimal		Compliance with the goals, policies, and implementation measures of the Kern County General Plan is required. No additional mitigation measures are proposed.	Minimal
Cumulative agricultural effects	Minimal		No mitigation required.	Minimal
4.3 Air Quality and Greenhouse Gas				
<i>No Action Alternative</i>	Minimal		There are no mitigation measures imposed under the No Action Alternative.	Minimal

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Impact	Significance Before Mitigation	Mitigation #	Mitigation Measure	Significance After Mitigation
<p><i>Proposed HCP Alternative and Reduced Permit Area Alternative</i></p> <p>Contribution to non-attainment during construction, operations, and decommissioning.</p>	Considerable	4.3-1	<p>Prior to obtaining grading permits for development of Permit Area, the project operator shall provide detailed greenhouse gas impact studies that include a quantification of emissions and identification of appropriate design or mitigation measures to minimize emissions as necessary.</p>	Minimal
		4.3-2	<p>Construction and operation of the proposed project shall be conducted in compliance with applicable rules and regulations set forth by the SJVAPCD. Dust control measures outlined below shall be implemented where they are applicable. The list shall not be considered all inclusive, and any other measures to reduce fugitive dust emissions not listed shall be encouraged.</p> <ul style="list-style-type: none"> a. Land Preparation, Excavation, and/or Demolition. The following dust control measures shall be implemented: <ul style="list-style-type: none"> i. All soil excavated or graded shall be sufficiently watered to prevent excessive dust. Watering shall occur as needed with complete coverage of disturbed soil areas. Watering shall take place a minimum of twice daily on unpaved/untreated roads and on disturbed soil areas with active operations. ii. All clearing, grading, earth moving, and excavation activities shall cease during periods of winds greater than 20 miles per hour (averaged over 1 hour), if 	

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Impact	Significance Before Mitigation	Mitigation #	Mitigation Measure	Significance After Mitigation
			<p>disturbed material is easily windblown, or when dust plumes of 20% or greater opacity impact public roads, occupied structures, or neighboring property.</p> <p>iii. All fine material transported off site shall be either sufficiently watered or securely covered to prevent excessive dust.</p> <p>iv. Areas disturbed by clearing, earth moving, or excavation activities shall be minimized at all times.</p> <p>v. Stockpiles of soil or other fine loose material shall be stabilized by watering or other appropriate method to prevent wind-blown fugitive dust.</p> <p>vi. Where acceptable to the fire department, weed control shall be accomplished by mowing instead of discing, thereby leaving the ground undisturbed and with a mulch covering.</p> <p>b. Site Construction. After clearing, grading, earth moving, and/or excavating, the following dust control practices shall be implemented:</p> <p>i. Once initial leveling has ceased, all inactive soil areas within the construction site shall be (1) seeded and watered until plant growth is evident, (2) treated with a dust palliative, or (3) watered twice daily until soil has sufficiently crusted to prevent fugitive dust emissions.</p>	

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			<ul style="list-style-type: none"> ii. All active disturbed soil areas shall be sufficiently watered at least twice daily to prevent excessive dust. c. Vehicular Activities. During all phases of construction, the following vehicular control measures shall be implemented: <ul style="list-style-type: none"> i. Onsite vehicle speed shall be limited to 15 miles per hour. ii. All areas with vehicle traffic shall be paved, treated with dust palliatives, or watered a minimum of twice daily. iii. Streets adjacent to the project site shall be kept clean, and project-related accumulated silt shall be removed. iv. Access to the site shall be by means of an apron into the project site from adjoining surfaced roadways. The apron shall be surfaced or treated with dust palliatives. If operating on soils that cling to the wheels of vehicles, a grizzly² or other such device shall be used on the road exiting the project site, immediately prior to the pavement, in order to remove most of the soil material from vehicle tires. 	

² A device (i.e. rails, pipes, or grates) used to dislodge mud, dirt, and/or debris from the tires and undercarriage of motor vehicles and/or haul trucks prior to leaving the work site (San Joaquin Valley Air Pollution Control District 2001).

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		4.3-3	<p>The project operator and/or its contractor(s) shall implement the following measures during construction of the proposed project:</p> <ul style="list-style-type: none"> a. All equipment shall be maintained as recommended by manufacturer manuals. b. Equipment shall be shut down when not in use for extended periods of time. c. Construction equipment shall operate no longer than 8 cumulative hours per day. d. Electric equipment shall be used whenever possible in lieu of diesel- or gasoline-powered equipment. e. All construction vehicles shall be equipped with proper emissions control equipment and kept in good and proper running order to substantially reduce NOX emissions. On- and off-road diesel equipment shall use diesel particulate filters if permitted under manufacturer's guidelines. <p>On- and off-road diesel equipment shall use diesel particulate filters if permitted under manufacturer's guidelines.</p>	
Cumulative air and greenhouse gas effects	Cumulatively considerable		Mitigation measures MM 4.3-1, MM 4.3-2, and MM 4.3-3 would be applied.	Substantial and unavoidable
4.4 Biological Resources				
<i>No Action Alternative</i>	Minimal		There are no mitigation measures imposed under the No Action Alternative.	Minimal

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<p><i>Proposed HCP Alternative and Reduced Permit Area Alternative</i></p> <p>Effects on covered species during site preparation, construction, operations, and decommissioning</p>	Considerable	4.4-1	Exclusion barrier fencing will be established between wetlands and Waters of the U.S. and the work area within Covered Lands to eliminate the potential for any adverse affects to these features.	Minimal
		4.4-2	Prior to development within Covered Lands the project proponent shall be required to conduct and submit to the Kern County Planning and Community Development Department appropriate protocol level biological surveys for special-status plant and animal species.	
		4.4-3	A qualified biologist shall be on site during vegetation removal and grading activities when those activities take place within 200 feet of sensitive habitats or species. Once those ground clearing activities have been accomplished, full-time monitoring shall no longer be required, but weekly inspections shall be conducted throughout the construction period to insure that mitigation measures for biological effects are being adequately implemented.	
			The Avoidance and Minimization Measures listed in Section 2.3.3 of this EIS for the Proposed HCP Alternative are applicable to this Alternative. Additionally, mitigation measures listed in Section 4.4.4.3 of this EIS for the Proposed HCP Alternative are applicable to this Alternative.	

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Cumulative biological effects	Cumulatively considerable		Mitigation measures MM 4.4-1 through MM 4.4-3 would be applied.	Substantial and unavoidable
4.5 Cultural Resources				
<i>No Action Alternative</i>	Minimal		No mitigation measures would be imposed for the No Action alternative.	Minimal
<i>Proposed HCP Alternative and Reduced Permit Area Alternative</i> Effects on potential cultural and paleontological resources during site preparation and construction.	Considerable	4.5-1a	Subsequent to the submission of a specific project, and prior to issuance of grading permits and ground disturbance activities, the project operator shall hire a qualified archaeologist to conduct a Phase-1 cultural resources assessment in areas where none have yet been conducted for this project. A report of the study shall be submitted to the Kern County Planning and Community Development Department for review. Based on the results, further cultural resources analyses (Phase-2) and/or additional mitigation measures may be required.	Minimal
		4.5-1b	Prior to conducting ground-disturbing activities, all contractor employees associated with earthmoving and excavation will attend a training session, informing them of the potential for inadvertently discovered cultural resources and/or human remains, and measures/protocols to be followed to prevent destruction of cultural or paleontological resources or human remains.	
		4.5-2	If concentrations of historic-period and/or prehistoric cultural materials are encountered during construction activities, all work in the immediate vicinity of the find shall halt until a qualified archaeologist can evaluate the find and make recommendations.	

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			Cultural resource materials may include, but are not limited to, historic resources such as household debris, ceramics, industrially related materials and fire-blown glass, metal, wood, brick or structural remnants. If the qualified archaeologist determines that he discovery represents a potentially significant cultural resource, additional investigations may be required to mitigate adverse effects from project implementation. These additional studies may include avoidance, testing, and evaluation, or data recovery excavation. Construction shall not resume until appropriate measures are recommended or the material are determined to be minimal.	
		4.5-3	During grading and site preparation activities, if paleontological resources, such as fossils are encountered all work in the immediate vicinity of the fins shall halt until a qualified paleontologist can evaluate the find and make recommendations. If the qualified archaeologist determines that he discovery represents a potentially significant paleontological resource, additional investigations may be required to mitigate adverse effects from project implementation. These additional studies may include avoidance, testing, and evaluation, or data recovery excavation. Construction shall not resume until appropriate measures are recommended or the material are determined to be minimal.	
		4.5-4	If human remains are discovered within the Project sites, the specific protocols, guidelines, and channels of communication outlined by the Native American Heritage Commission, and in accordance with Section 7050.5 of the Health and Safety Code, Section 5097.98 of the PRC (Chapter 1492, Statues of 1982, SB	

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			297), and SB 447 (Chapter 44, Statutes of 1987) will be followed. Section 7050.5 will guide the potential Native American involvement, in the event of discovery of human remains, at the direction of the County Coroner.	
Cumulative cultural resource effects	Cumulatively considerable		Mitigation measures MM 4.5-1a, MM 4.5-1b, MM 4.5-2, MM 4.5-3 and MM 4.5-4 would apply.	Minimal
4.6 Geology and Soils				
<i>No Action Alternative</i>	Minimal		There are no mitigation measures imposed under the No Action Alternative.	Minimal
<i>Proposed HCP Alternative and Reduced Permit Area Alternative</i> Effects on soil resources during site preparation, construction, and operations	Considerable	4.6-1a	Prior to the approval of grading permits on all Permit Area sites, the project operator shall retain a qualified geotechnical engineer to design the project facilities to withstand probable seismic-induced ground shaking on the site. All grading and construction on site shall adhere to all specifications and procedures and site conditions presented in the final design plans, which shall be fully compliant with the seismic requirements of the California Building Code, Uniform Building Codes, Kern County Building Code, Chapter 17, and as recommended by a California registered professional engineer. The procedures and site conditions include, but are not limited to, proper site preparation, foundation specifications, and buried metal protection measures. The final structural design shall be subject to approval and follow-up inspection by the Kern County Building Inspection Department. Final compliance requirements shall be provided to the onsite construction supervisor and Kern County building inspector to ensure compliance.	Minimal

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		4.6-1b	A detailed Phase II geotechnical evaluation by a qualified soils/geotechnical engineer or geologist, consisting of field exploration (drilling and soil sampling), laboratory testing of soils samples and engineering analysis, shall be prepared to determine soils properties as related to, but not limited to the following: ground motion acceleration parameters, amplification properties of the subsurface units at the specific site(s), the potential for the hydrocompaction of soils to affect the proposed facilities, septic sanitary system feasibility, as well as the expansive soils' potential to affect the proposed facilities. These studies shall be used to determine the appropriate solar panel foundation and support structure engineering to be utilized, as well as building requirements and septic system requirements to be incorporated in the proposed development as appropriate. Copies of all analyses shall be submitted for review and approval by the Kern County Engineering Surveying and Permit Services Department and the Planning and Community Development Department.	
		4.6-2	The project operator shall limit grading to the minimum area necessary for construction and operation of the project, and shall retain a California registered professional engineer to review the final grading earthwork and foundation plans prior to construction. Final plans shall include BMPs to limit on- and offsite erosion, and a water plan to treat disturbed areas during construction to reduce dust suppression.	
		4.6-3	The project operator shall use existing roads to the greatest extent feasible to minimize increased erosion. Prior to approval of the	

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			grading permit, the final plans shall be reviewed by the County to confirm that existing roads were used to the greatest extent feasible. If the county determines that new roads would be created that are not necessary to the project construction or are redundant to existing roads, the project operator will remove the offending roads from the final plans prior to approval.	
		4.6-4	The project operator shall design the septic systems and leach fields in accordance with the Kern County Environmental Health Services Department and shall obtain the required permits and/or approvals related to septic systems and leach fields and implement all required conditions.	
Cumulative geologic and soils effects	Cumulatively considerable		Mitigation Measures MM 4.6-1a through MM 4.6-4 would apply.	Minimal
4.7 Hazards and Hazardous Materials				
<i>No Action Alternative</i>	Minimal		There is no mitigation measure imposed under the No Action Alternative.	Minimal
<i>Proposed HCP Alternative and Reduced Permit Area Alternative</i> Potentially hazardous effects during construction and operations	Considerable	4.7-1	During construction, should installation of trackers and panels require a pile driver to drive in steel support piles, the applicant shall use the Vermeer PD10 pile driver, or a similar piece of equipment that would not exceed the County of Kern's 65 DM Ldn limit at the nearest resident.	Minimal

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		4.7-2	The plugged and/or abandoned wells located within the project boundaries shall be inspected and tested for leakage prior to construction activities. Remedial operations will be performed if necessary. The well locations shall be recorded on all future maps of the project. A copy of the map shall be submitted to the California Department of Oil, Gas, & Geothermal Resources (DOGGR). In the event that other abandoned or unrecorded wells are uncovered or damaged during excavation or grading activities, remedial plugging operations may be required. DOGGR shall be contacted for requirements and approval, and copies of said approvals shall be submitted to the Kern County Planning and Community Development Department.	
		4.7-3	In accordance with the California Health and Safety Code and Kern County regulations, the project operator shall prepare a hazardous materials business plan and submit it to the Kern County Environmental Health Services Department/Hazardous Materials Section for review and approval. The hazardous materials business plan will delineate hazardous material and hazardous waste storage areas; describe proper handling, storage, transport, and disposal techniques; describe methods to be used to avoid spills and minimize effects in the event of a spill; describe procedures for handling and disposing of unanticipated hazardous materials encountered during construction; and establish public and agency notification procedures for spills and other emergencies, including fires.	

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			The hazardous materials business plan will also include procedures to avoid or minimize dust from existing residual pesticide and herbicide use that may be present on the site. The project operator will provide the hazardous materials business plan to all contractors working on the project and will ensure that one copy is available at the project site at all times.	
		4.7-4	The contractor or personnel shall use herbicides that are approved for use by the California Department of Fish and Wildlife. Workers applying herbicides shall have all appropriate State and local herbicide applicator licenses and comply with all State and local regulations regarding herbicide use. Herbicides shall be mixed and applied in conformance with the product manufacturer's directions. The herbicide applicator shall be equipped with splash protection clothing and gear, chemical resistant gloves, chemical spill/splash wash supplies, and material safety data sheets for all hazardous materials to be used. To minimize harm to wildlife, vegetation, and water bodies, herbicides shall not be applied directly to wildlife; products identified as non-toxic to birds and small mammals will be used if nests or dens are observed; and herbicides shall not be applied within 50 feet of any surface water body when water is present. Herbicides shall not be applied if it is raining at the site, rain is imminent, or the target area has puddles or standing water. Herbicides shall not be applied when wind velocity exceeds 10 miles per hour. If spray is observed to be drifting to a non-target location, spraying shall be discontinued until conditions causing the drift have abated.	

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Cumulative hazardous effects	Cumulatively considerable		Mitigation measures MM 4.7-1 through MM 4.7-4 would apply.	Minimal
4.8 Hydrology and Water Quality				
<i>No Action Alternative</i>	Minimal		There are no mitigation measures imposed under the No Action Alternative.	Minimal
<i>Proposed HCP Alternative and Reduced Permit Area Alternative</i> Potential effects on local surface hydrology and water quality	Considerable	4.8-1	Prior to issuance of grading permits, the project operator shall submit a Stormwater Pollution Prevention Plan (SWPPP) to the Kern County Planning and Community Development Department that specifies BMPs to prevent all construction pollutants from contacting stormwater, with the intent of keeping all products of erosion from moving off site and into receiving waters. The requirements of the SWPPP shall be incorporated into design specifications and construction contracts. Recommended BMPs for the construction phase may include the following: <ul style="list-style-type: none"> • Stockpiling and disposing of demolition debris, concrete, and soil properly; • Protecting existing storm drain inlets and stabilizing disturbed areas; • Implementing erosion controls; • Properly managing construction materials; and • Managing waste, aggressively controlling litter, and implementing sediment controls. 	Minimal

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		4.8-2	<p>Prior to issuance of grading permits, the project operator shall prepare a drainage plan that is designed to mitigate runoff and surface water pollution and shall include engineering recommendations to minimize the potential for impeding or redirecting 100-year flood flows. The final design of the solar arrays shall include a 0.5-foot clearance above 1.0 foot of freeboard between the calculated maximum flood depths for Base Elevation and the bottom support rail of the solar arrays or the finished floor of any permanent structure. Solar sites shall be graded to direct potential flood waters into channels adjacent to the existing and proposed right of ways, without increasing the water surface elevations more than one-foot or as required by Kern County's Floodplain Ordinance. The drainage plan shall be prepared in accordance with the Kern County Grading Code and approved by the Kern County Engineering, Surveying and Permitting Services, Floodplain Management Section prior to the issuance of grading permits.</p> <p>With implementation of these measures for the Solar Development Footprint involved in this project the construction, operation and decommissioning of the Solar Sites and their equipment and access facilities will have minimal environmental effects.</p>	
Cumulative hydrology and water quality effects	Cumulatively considerable		Mitigation measures MM 4.8-1 and MM 4.8-2 would be applicable.	Minimal

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4.9 Land Use and Planning				
<i>No Action Alternative</i>	Minimal		There are no mitigation measures imposed under the No Action Alternative.	Minimal
<i>Proposed HCP Alternative and Reduced Permit Area Alternative</i>	Considerable	4.9-1	Prior to operation of the solar facility, the project operator shall consult with the Department of Defense to identify the appropriate Frequency Management Office officials to coordinate the use of telemetry to avoid potential frequency conflicts with military operations.	Minimal
Potential effects on land use		4.9-2	Prior to issuance of any building permit, the project operator will provide a decommission plan for review and approval by the Kern County Engineering, Surveying, and Permit Services Department or a County-contracted consulting firm at a cost to be borne by the project operator. The decommission plan will factor in the cost to remove the solar panels and support structures, replace disturbed soils from removal of support structures, and control fugitive dust on the remaining vacant land. Salvage value for the solar panels and support structures will be included in the financial assurance calculations. This mitigation measure will be in effect only when/if the project operator is incapable of performing the work or when Kern County would be required to hire an independent contractor to perform the decommission work. In addition to submitting a decommission plan, the project operator will post or establish and maintain with Kern County financial assurances related to the deconstruction of the site as identified on the approved decommission plan in the event that at any point in time the project manager determines that he/she cannot undertake the decommissioning process as outlined.	

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			<p>The financial assurance required to issuance of any building permit will be established using one of the following:</p> <ul style="list-style-type: none"> • An irrevocable letter of credit; • A surety bond; • A trust in accordance with the approved financial assurances to guarantee the deconstruction will be completed in accordance with the approved decommission plan; or • Other financial assurances as reviewed and approved by the County Administrative Office in consultation with the Kern County Planning and Community Development Department. <p>The financial institution or surety company will give Kern County at least 120 days' notice of intent to terminate the letter of credit or bond. Financial assurances will be reviewed annually by the Kern County Engineering, Surveying, and Permit Services Department or a County-contracted consulting firm at a cost to be borne by the project operator to substantiate that adequate funds exist to ensure deconstruction of all solar panels and support structures identified on the approved decommission plan. Should the project operator deconstruct the site on its own, the County will not pursue forfeiture of the financial assurance. Once deconstruction has occurred, financial assurance for that portion of the site will no longer be required and any financial assurance posted will be adjusted or</p>	

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			returned accordingly. Any funds not used through decommission of the site by the County will be returned to the project operator.	
Cumulative land use and planning effects	Cumulatively considerable		Mitigation measures MM 4.9-1 and 4.9-2 would apply.	Minimal
4.10 Mineral Resources				
<i>No Action Alternative</i>			There are no mitigation measures imposed under the No Action Alternative.	
<i>Proposed HCP Alternative and Reduced Permit Area Alternative</i> Effects on mineral resources during construction and operations	Considerable	4.7-1	Found in Section 4.7, Hazardous Materials requires inspection and testing of capped or abandoned wells within the Covered Lands. The plugged and/or abandoned wells located within the project boundaries shall be inspected and tested for leakage prior to construction activities. Remedial operations will be performed if necessary. The well locations shall be recorded on all future maps of the project. A copy of the map shall be submitted to DOGGR. In the event that other abandoned or unrecorded wells are uncovered or damaged during excavation or grading activities, remedial plugging operations may be required. DOGGR shall be contacted for requirements and approval, and copies of said approvals shall be submitted to the Kern County Planning and Community Development Department.	Minimal
		4.9-2	Found in Section 4.9 Land Use, requires a decommissioning plan. Prior to issuance of any building permit, the project operator will provide a decommission plan for review and approval by the Kern County Engineering, Surveying, and Permit Services Department or a County-contracted consulting firm at a cost to be borne by the	

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			project operator. The decommission plan will factor in the cost to remove the solar panels and support structures, replace disturbed soils from removal of support structures, and control fugitive dust on the remaining vacant land. Salvage value for the solar panels and support structures will be included in the financial assurance calculations. This mitigation measure will be in effect only when/if the project operator is incapable of performing the work or when Kern County would be required to hire an independent contractor to perform the decommission work. In addition to submitting a decommission plan, the project operator will post or establish and maintain with Kern County financial assurances related to the deconstruction of the site as identified on the approved decommission plan in the event that at any point in time the project manager determines that he/she cannot undertake the decommissioning process as outlined.	
		4.10-1a	For Solar Site 2-S,Solar Site 3-S, Solar Site 4-S, Site 6, Site 7-S, and Solar Site 15-6, (see Figure 2-2 for Site Locations): The Project Operator or its successor-in-interest (“Project Operator”) shall reach a written agreement with Vintage Production California LLC or its successor-in-interest (“Vintage”) as to the location of a maximum of five separate 10-acre drill site areas per section (hereinafter “Drilling Areas”) on these parcels and routes of ingress and egress thereto. The Drilling Areas shall be located in such a manner as to allow complete and efficient access to, and the exploration and/or extraction of, underlying oil reserves or other minerals. The total acreage of Drilling Areas shall not exceed 50 acres per 640-acre section.	

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		4.10-1b	The Project Operator shall record or cause to be recorded easements or other documents confirming Vintage's interest in the Drilling Areas and its right of ingress and egress to each drill site.	
		4.10-1c	Evidence of Vintage's written agreement with the Project Operator as to the location of the Drilling Areas and the easements or other documents confirming Vintage's interest in the Drilling Areas and right of access to each drill site shall be submitted by Project Operator to the Planning and Community Development Department for verification prior to final site plan approval and the issuance of any grading or building permits for the development of solar facilities on project sites.	
		4.10-1d	Should an alternative agreement to part a) and/or b) above, be reached between Vintage and the Project Operator, written documentation shall be submitted by Project Operator to the Planning and Community Development Department for verification prior to final site plan approval and the issuance of any grading or building permits for the development of solar facilities on project sites.	
		4.10-2a	For Conservation Site 1-C, Solar Site 5-S, Conservation Site 9-C, Conservation Site 10-C, (see Figure 2-2 for Site Locations): The Project Operator shall consult with Vintage regarding the number, location, and size of the Drilling Areas for these specified parcels and access to each of the Drilling Areas. The Project Operator shall reach a written agreement with Vintage as to the number, location, and size of the Drilling Areas on these specified parcels and routes	

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			of ingress and egress thereto. The Drilling Areas shall be located in such a manner as to allow complete and efficient access to, and the exploration and/or extraction of, underlying oil reserves or other minerals.	
		4.10-2b	The Project Operator shall record or cause to be recorded easements or other documents confirming Vintage's interest in the Drilling Areas and its right of ingress and egress to each drill site.	
		4.10-2c	Evidence of Vintage's written agreement with the Project Operator as to the location of the Drilling Areas and the easements or other documents confirming Vintage's interest in the Drilling Areas and right of access to each drill site shall be submitted by Project Operator to the Planning and Community Development Department for verification prior to final site plan approval and the issuance of any grading or building permits for the development of solar facilities on project sites.	
		4.10-2d	Should an alternative agreement to part a) and/or b) above, be reached between Vintage and the Project Operator, written documentation shall be submitted by Project Operator to the Planning and Community Development Department for verification prior to final site plan approval and the issuance of any grading or building permits for the development of solar facilities on project sites.	
		4.10-3a	For sites upon which Aera Energy LLC ("Aera") owns an interest in the minerals, The Project Operator or its successor-in-interest ("Project Operator"), shall reach a written agreement with Aera or	

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			its successor-in-interest as to the location or a maximum of five separate 10-acres drill site areas per section (hereinafter, "Drilling Areas") on these parcels and routes of ingress and egress thereto. The Drilling Areas shall be located in such a manner as to allow complete and efficient access to, and the exploration and/or extraction of, underlying oil reserves or other minerals. The total acreage of Drilling Areas shall not exceed 50 acres per 640-acre section.	
		4.10-3b	The Project Operator shall record or cause to be recorded easements or other documents confirming Area's interest in the Drilling Areas and its right of ingress and egress to each drill site.	
		4.10-3c	Evidence of Vintage's written agreement with the Project Operator that the solar panel configuration and associated equipment will allow for sufficient placement of seismic geophones and access for vibrator buggies, along with Aera's written agreement as to the location of the Drilling Areas and the easements or other documents confirming Aera's interest in the Drilling Areas as well as, sufficient pipeline and power line corridors from the drill sites to a point exiting the property and right of access to each drill site, shall be submitted by Project Operator to the Planning and Community Development Department for verification prior to final site plan approval and the issuance of any grading or building permits for the development of solar facilities on project sites.	

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Impact	Significance Before Mitigation	Mitigation #	Mitigation Measure	Significance After Mitigation
		4.10-3d	Should an alternative agreement to part a) and/or b) above, be reached between Aera and the Project Operator, written documentation shall be submitted by Project Operator to the Planning and Community Development Department for verification prior to final site plan approval and the issuance of any grading or building permits for the development of solar facilities on project sites.	
		4.7-1	Found in Section 4.7, Hazardous Materials requires inspection and testing of capped or abandoned wells within the Covered Lands.	
		4.9-2	Found in Section 4.9 Land Use, requires a decommissioning plan.	
Cumulative mineral resources effects	Cumulatively considerable		Mitigation measures MM 4.7-1, MM 4.9-2, MM 4.10-1a through 4.10-1d, MM 4.10-2a through 4.10-2d and MM 4.10-3a through 4.10-3d would apply.	Minimal
4.11 Public Services				
<i>No Action Alternative</i>	Minimal		There are no mitigation measures imposed under the No Action Alternative.	
<i>Proposed HCP Alternative and Reduced Permit Area Alternative</i> Potential effects on public services during construction and operations	Considerable	4.11-1	The applicant shall develop and implement a fire safety plan for use during construction and operation. The applicant shall submit the plan, along with maps of the project site and access roads, to the KCFD for review and approval prior to the issuance of any building permit or grading permits. The fire safety plan shall contain notification procedures and emergency fire precautions including, but not limited to, the following:	Minimal

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			<ul style="list-style-type: none"> a. All internal combustion engines, stationary and mobile, shall be equipped with spark arresters. Spark arresters shall be in good working order; b. Trucks and cars with factory-installed (type) mufflers shall be used only on roads where the roadway is cleared of vegetation. These vehicle types shall maintain their factory-installed (type) muffler in good condition; c. Fire rules shall be posted on the project bulletin board at the contractor's field office and areas visible to employees; d. Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials; e. Personnel shall be trained in the practices of the fire safety plan relevant to their duties. Construction and maintenance personnel shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats; and f. The applicant shall make an effort to restrict use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to outside the official fire season. When the above tools are used, water tanks equipped with hoses, fire rakes, and axes shall be easily accessible to personnel. 	

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		4.11-2	The applicant shall pay the County for impacts to countywide public protection, sheriff patrol and investigation, and fire services at a rate of \$29.59 per 1,000 square feet of covered ground for the facility and related onsite structures for the entire covered area of the project. The total amount shall be divided by the number of years of operation and paid on a yearly basis. The annual amount shall be based on the square footage of solar site ground covered by April 30 of each year, if completed in phases. The amount shall be paid for each and all years of operation. The fee shall be paid to the Kern County auditor/controller by April 30 of each calendar year.	
		4.11-3	Written verification of ownership of the project shall be submitted to the Kern County Planning and Community Department by April 15 of each calendar year. If the project is sold to a city, county, or utility company that pays assessed taxes that equal less than \$1,000 per MW per year, then they shall pay those taxes plus an amount necessary to equal the equivalent of \$1,000 per MW. The amount shall be paid for all years of operation. The fee shall be paid to the Kern County Auditor/Controller by April 30 of each calendar year.	
Cumulative public services effects	Cumulatively considerable		Mitigation measures MM 4.11-1 through 4.11-3 would apply.	Minimal
4.12 Traffic and Transportation				
<i>No Action Alternative</i>			There are no mitigation measures imposed under the No Action Alternative.	

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<p><i>Proposed HCP Alternative and Reduced Permit Area Alternative</i></p> <p>Potential effects on traffic and transportation systems during construction and operations</p>	Considerable	4.12-1	<p>Prior to the issuance of building or grading permits the project operator shall:</p> <ul style="list-style-type: none"> a. Submit engineering drawings of any proposed access road design for the review and approval of the Kern County Roads Department. b. Obtain an encroachment permit from the Kern County Roads Department for applicable roads in the Kern County Road Maintenance System. c. Enter into a secured agreement with Kern County to ensure that any County roads that are demonstrably damaged by project-related activities are promptly repaired and, if necessary, paved, slurry-sealed, or reconstructed as per requirements of the state and or Kern County. d. Identify the roads to be used during construction, and be responsible to repair any damage to non-County maintained roads that may result from construction activities; submit to the Kern County Planning and Community Development Department a preconstruction video log and inspection of roadway conditions for those roads to be used during construction. 	Minimal
		4.12-2	<p>Subsequent to completion of construction and to decommissioning, submit post-construction/post decommissioning video log and inspection reports to the County in DVD format. The County, in consultation with the HCP's engineer, shall determine the extent of remediation required, if any.</p>	

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Cumulative traffic and transportation effects	Cumulative considerable		Mitigation measures MM 4.12-1 and MM 4.12-2 would apply.	Minimal
4.13 Environmental Justice				
<i>No Action Alternative</i>	Minimal		There are no mitigation measures imposed under the No Action Alternative.	
<i>Proposed HCP Alternative and Reduced Permit Area Alternative</i>	Minimal		No mitigation measures are required.	Minimal
Potential environmental justice effects				
Cumulative environmental justice effects	Minimal		No mitigation measures are required.	Minimal